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PACKAGING SLICED CHEDDAR AND SWISS CHEESE IN CANS FOR SANDWICH DISPENSERS

By H. L. Wilson, *associate dairy manufacturing specialist, Division of Dairy Research Laboratories, Bureau of Dairy Industry*

CONTENTS

	Page
Introduction	1
Canning sliced Cheddar cheese	2
Canning sliced Swiss cheese	2
Select good quality cheese	4
Method of cutting and slicing	5
Canning sliced Swiss cheese—Con.	
Approximate cost of canning sliced Swiss cheese	7
Advantages of canned cheese	8

INTRODUCTION

In restaurants, cafes, hotels, and other eating places where cheese sandwiches are served, a very small percentage of the Swiss and Cheddar cheese used is the natural product. At least one reason for the small percentage of natural cheese is that neither of these varieties is normally made and marketed in a size or shape suitable or convenient for making sandwiches.

Swiss cheese is made in the shape of a large wheel, weighing from 150 to 225 pounds, and varying from 30 to 35 inches in diameter and 6 to 11 inches in thickness. The large wheel is not only inconvenient to handle in sandwich shops but is almost unknown outside of the producing section and the larger cities. Many small-shop owners handle little or no natural Swiss cheese because there often is no dealer who can furnish the cheese in small loaves, and their limited trade makes it impracticable to buy a whole wheel. They have no way to utilize the waste caused by getting the wheel into sandwich form, which in an ordinary cheese may amount to 30 percent of its weight. Even when the cheese can be obtained from a central distributor in the form of small loaves ready for slicing, there are disadvantages that operate against its use in many sandwich shops; there still is the loss from the rind, shrinkage, and drying out, and also the difficulty of cutting uniform slices.

Cheddar cheese is likewise handicapped by the odd shapes and sizes in which it is commonly made and sold.

Undoubtedly, the consumption of both Swiss and Cheddar cheese would be greater if all classes of sandwich dispensers could obtain

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the natural cheese in a form more suitable for their purpose than the large bulky styles and shapes in which these varieties are made.

In an effort to provide sandwich dispensers with a more convenient package for their purpose, the Bureau of Dairy Industry last year demonstrated the commercial possibility of packaging either sliced Cheddar cheese or sliced Swiss cheese in cans for distribution to all classes of sandwich shops. Sliced cheese in cans affords a number of advantages over the ordinary bulk styles, in large shops as well as in the smaller shops.

CANNING SLICED CHEDDAR CHEESE

A number of years ago, the Bureau of Dairy Industry recognized the need for a method of packaging American Cheddar cheese in small, attractive containers to enable this cheese to compete more successfully with other packaged foods in retail stores. Efforts to meet this need resulted in a cheese in cans.[1] The process consists essentially in sealing the freshly made curd in valve-equipped cans in which normal ripening takes place and in which the cheese is also retailed to the consumer. The method is now well established commercially, and the cheese is cured and merchandised in cans of various shapes and sizes, depending on the particular market for which it is intended.

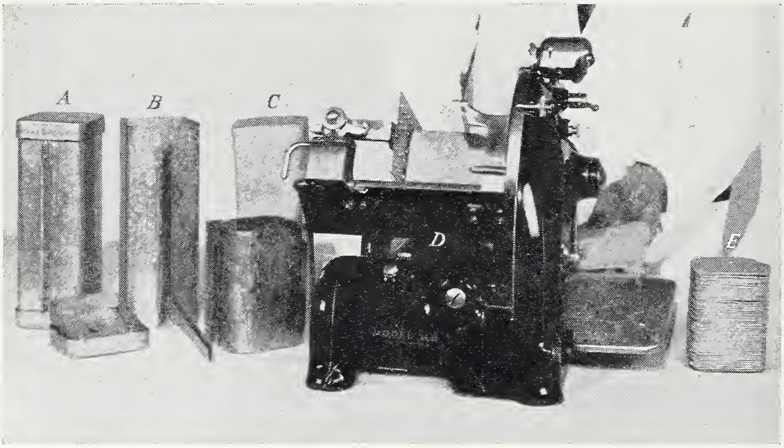

Figure 1.—Machine for slicing loaves of Cheddar cheese curd: *A*, Assembled form in which loaf was pressed; *B*, open form from which pressed loaf was removed; *C*, pressed loaf of curd ready for slicing; *D*, automatic slicing machine; and *E*, stack of slices to be wrapped in moisture-resistant material and sealed in valve-vented cans for curing.

More recently the Bureau has adapted this method to the canning of sliced Cheddar cheese especially for use in sandwich shops. The curd is pressed in special forms (fig. 1) to produce a print the approximate size and shape of a loaf of bread. When the curd is removed from the press, it is sliced by machine (fig. 1), the stack of slices is wrapped in moisture-resistant material, and the package is then sealed in the valve-vented can in which the cheese cures and is sold to the sandwich maker.

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[1] Rogers, L. A. ripening cheese in a sealed package. Jour. Dairy Sci. 15: 185–189, illus. 1932.

Wilson, H. L. packaging, curing, and merchandising american cheddar cheese in cans. U. S. Dept. Agr. Cir. 352, 15 pp., illus. 1935.

The experimental work in canning sliced Cheddar cheese has been confined to the use of a can that holds 5 pounds of cured cheese, either as a single print or in slices. The dimensions of the can are 4⅛ by 3⅝ inches at the base by 11¼ inches in height.

It would be possible, and in many cases desirable, to pack and cure several 5-pound loaves in a single valve-vented can; the loaves could be sliced, or not, depending on the method of merchandising the cheese. This type of package, with two to four 5-pound loaves in a single can, would be convenient for a central distributor who supplies chain restaurants or lunch counters. Such a distributor, equipped with an automatic slicing machine, could purchase cans of the unsliced cheese and slice it according to his own particular specifications, or as required by his customers.

Several loaves in one large can would cost less per pound for the packaging than one loaf in a smaller can. A can with a cross section 4⅛ by 7½ inches, and a height of 11¼ inches, would hold two 5-pound loaves; a can with a cross section 8½ by 7½ inches, and 11¼ inches in height, would hold four 5-pound loaves. The cost of packaging four 5-pound loaves in one can would be approximately the same per pound of cheese as the cost of packaging cheese in the usual form; that is, if the loss from shrinkage and cost of labor in the curing room are included. If the canned cheese is sliced, there would be an additional cost.

It is also possible, and would be desirable for some classes of retail trade, to pack and cure a number of ½-pound, 1-pound, or 2-pound prints (sliced or otherwise) in a single valve-vented can that holds 10 or 20 pounds of cheese. Each print would be wrapped separately, in moisture-resistant material, before it was sealed in the can for curing.

CANNING SLICED SWISS CHEESE

In the experiments in packing sliced Swiss cheese for the sandwich trade, the standard 5-pound Cheddar cheese can has been used as the container. This can has a cross section 4⅛ by 3⅝ inches and is 11¼ inches long. Since it was designed to hold a sandwich loaf of Cheddar cheese, it is of suitable dimensions for sandwich slices of Swiss cheese also. This can will hold 5 pounds of Cheddar cheese, or 4½ pounds of Swiss cheese.

A valve-vented can is required for Cheddar cheese to enable the green curd to cure in the can satisfactorily. Although Swiss cheese is already cured when it is sliced and packed in cans, the valve is desirable also on the Swiss-cheese container because some gas is formed if the cheese is held long enough under certain conditions.

Cans of the same cross section but shorter than the standard can may be used for packing smaller quantities; but the packaging cost per pound of cheese would be greater.

It would also be possible, and perhaps desirable, to pack sliced Swiss cheese in larger cans, which would reduce the packaging cost per pound of cheese. Two 4½-pound loaves of sliced cheese could be packed in a can 4⅛ by 7½ by 11¼ inches, and four 4½-pound loaves in a can 8½ by 7½ by 11¼ inches. Or the same amount of sliced cheese (9 or 18 pounds) could be packed in these containers, in the form of ½-pound, 1-pound, or 2-pound packages, each package wrapped separately in moisture-resistant material. These multiple-unit containers would be convenient for central distributors to use in serving chain restaurants and lunch counters with sliced Swiss cheese in the quantities desired. The cans could be opened at the warehouse and the desired number of packages sent out to each restaurant or lunch counter daily.

SELECT GOOD QUALITY CHEESE

When Swiss cheese is merchandised in a package that bears a company's label or brand, it is important to select cheese of good quality, especially of good flavor and texture. The flavor should be well developed and the texture firm and meaty and not tough or coarse.

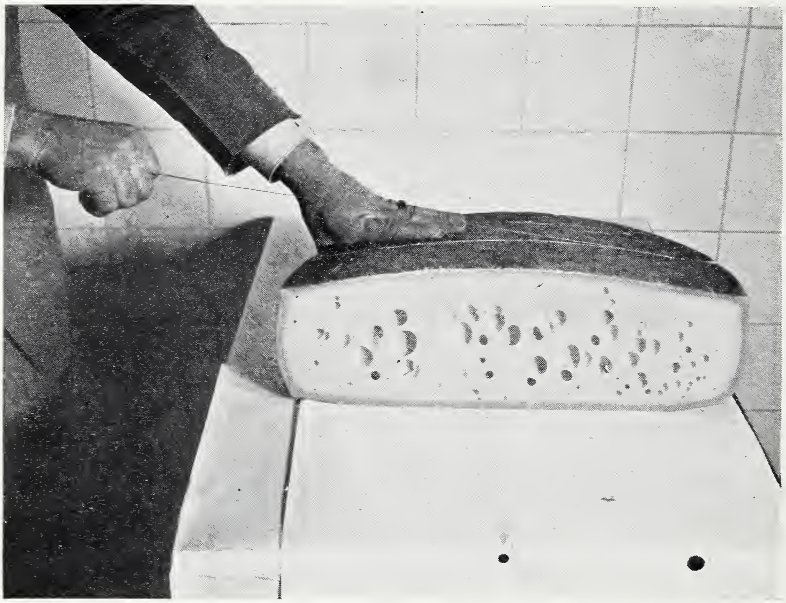

FIGURE 2.—Swiss cheese with satisfactory eye formation and freedom from checks.

The Bureau's experiments have shown that Swiss cheese having a tough or coarse texture will sweat or leak some moisture if held in the can for 3 to 5 months. Coarse texture may be caused by removing too much butterfat from the milk or by having too great a proportion of casein to fat. Experimental cheese having a firm, meaty texture at the time it was canned kept in excellent condition for as long as 6 months.

The eyes should be uniform in size, not too large or too numerous, and evenly distributed as shown in figure 2. The body of the cheese should be free from checks or cracks known as glass. If the eyes are too large, or the cheese was overset, it is impossible to obtain perfect slices and the slices may also be fragile, which makes them difficult to pack and serve. Checked cheese also is undesirable because of the large number of imperfect slices that result.

Cheese that is classed as undergrade because of mechanical defects, such as cracked rind, may be used to advantage for canning if it has a desirable flavor and texture and proper eye formation.

There is probably no object in holding Swiss cheese after it is canned, but if for any reason it is desirable to do so it can be held for several months if the cheese was of good quality when it was canned. 50° F. is a desirable temperature for storing canned Swiss cheese.

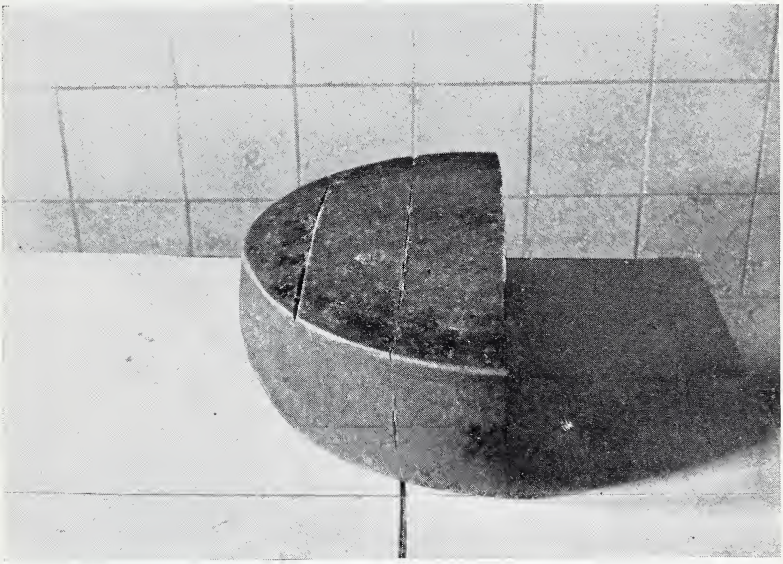

FIGURE 3.—A half wheel of Swiss cheese marked for cutting into strips 3¾ inches wide.

METHOD OF CUTTING AND SLICING

A wheel of Swiss cheese can be cut into fairly uniform blocks or loaves, if it is first placed on a table where it can be measured and marked (fig. 3). The wheel is first cut into strips 3¾ inches wide (fig. 2), which are then cut crosswise, making loaves 3¾ inches 3½ inches and as long as the cheese is high (fig. 4).

The rind is trimmed off both ends of each loaf and it is then forced through a shaper that trims off the edges. The loaf is now free from rind and is the proper shape for slicing (fig. 5). A slicing machine that has an automatic feed and that can be set to cut slices of uniform thickness is shown in figure 6.

Some restaurants only put one slice of cheese in a sandwich while others prefer to use thinner slices and put 2 or 3 in a sandwich. When 1 slice is used in a sandwich a No. 5 or 6 is desirable; if more than 1 is used the No. 3 or No. 4 size is preferable. About 20 No. 3 or No. 4 slices can be cut from a pound of cheese, and about 16 No. 5

or No. 6. Because of the uncertainty of the demand, it may be best to pack the thinner slices, unless orders for thicker slices are received from the customer.

The slices should be graded and stacked evenly as they are cut. About 90 slices of the No. 3 or No. 4 size, or about 72 slices of the No. 5 or No. 6 size, will make a stack weighing about 4½ pounds.

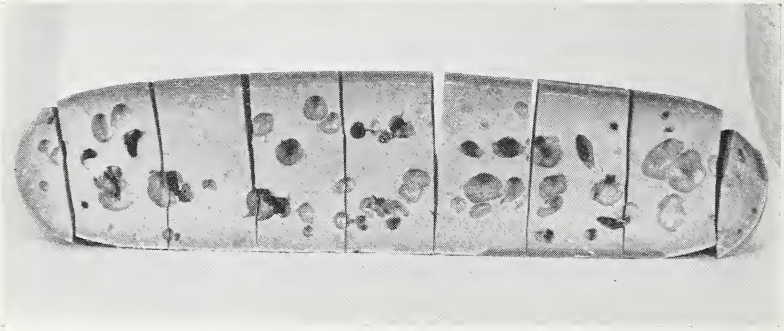

FIGURE 4.—Swiss-cheese strip, 3¾ inches wide, cut every 3½ inches along its length to form loaves with a cross section of 3¾ by 3½ inches.

Slices that are too fragile or imperfect to be packed or served easily should be culled out. (They may be canned separately for sale at a lower price, however.) Each stack is then weighed and wrapped in a sheet of heat-sealing cellophane, or some other moisture-resistant material. Each wrapper should be 15 by 16 inches.

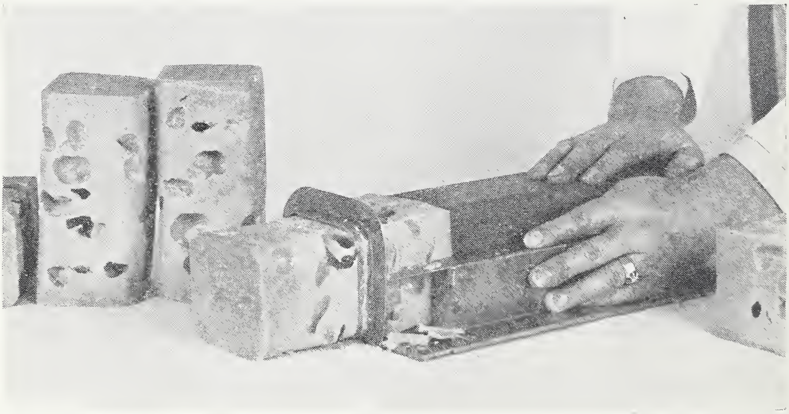

FIGURE 5.—Forcing the rind-free loaves through a shaper which trims off the edges.

The wrapped package is now ready to be sealed in the valve-vented can (fig. 7). After the cheese is in the can it should be held at a temperature of from 50° to 55° F. If the cheese is held at a low temperature (40° or lower) the slices have a tendency to stick together, and for this reason the sandwich maker will find it desirable to transfer the can to a higher temperature (60° or 70°) for a short time before serving.

Approximate Cost of Canning Sliced Swiss Cheese

If the cheese is sound, free from glass, and of the proper eye formation, about 70 percent of a wheel can be sliced and packed in cans. About 20 percent can be used for processing, and the balance, or 10 percent, is the rind and may be total waste. The can is the largest item of cost. In lots of 5,000 the can holding 4½ pounds will cost about 2¼ cents per pound of cheese. The cost per pound of cheese can be reduced to about 1¼ cents if a can holding 18 pounds is used.

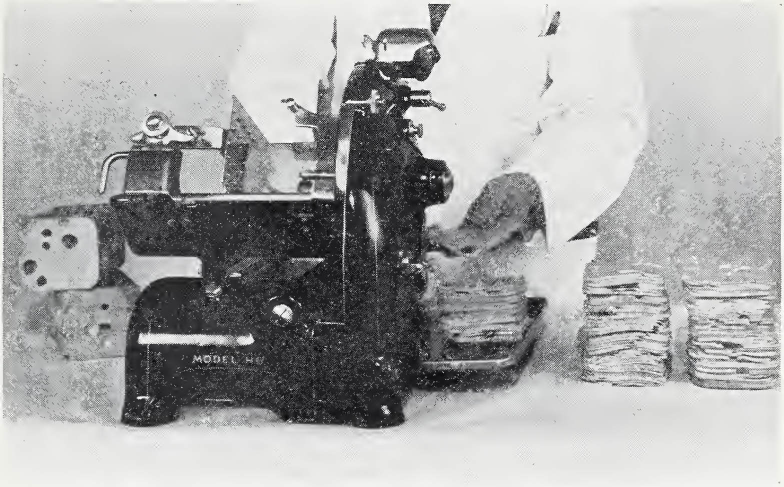

Figure 6.—Slicing a loaf of Swiss cheese and stacking the slices preparatory to wrapping them for canning.

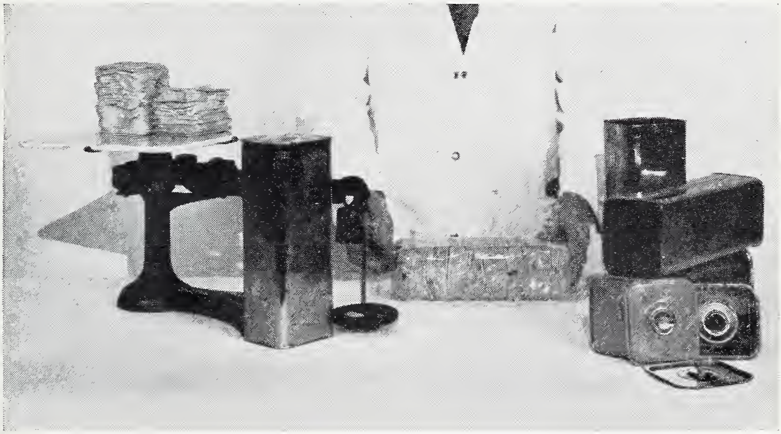

Figure 7.—Weighing and wrapping slices of Swiss cheese for packing in a valve-vented can.

When the price of cheese of this quality is 18 cents per pound in the wheel, it can be sliced, wrapped in moisture-resistant material, and packed in valve-vented 5-pound cans on a small scale for approximately 35 cents per pound. If the trimmings are made into processed cheese and net 16 cents per pound, the amount received for the processed cheese will reduce the cost of the canned cheese about 4 cents per pound.

ADVANTAGES OF CANNED CHEESE

Cheese cured or packed in cans does not form rind, or lose weight from shrinkage or drying. Sliced cheese in cans is especially convenient and desirable for sandwich shops and lunch counters. The slices are uniform in shape, size, and thickness. When the manager of a sandwich shop purchases a can of sliced cheese he not only knows the cost but also the number of slices it contains, and therefore the number of sandwiches he can make. He does not have to allow for any loss from shrinkage or rind, or for labor and inconvenience in slicing. After the can is opened the cheese will not mold or dry out for several days, and the slices may be used as needed.

When cheese is canned for sale through grocery stores, a convenient package is a can holding a number of ½-pound or 1-pound prints of sliced cheese, each wrapped separately in moisture-resistant material. This would be a convenient form for the groceryman to purchase cheese, because the cost per pound would be proportionately lower for a larger container, and the prints are already weighed and wrapped for sale to the consumer.

Cheese packed in cans may be labeled to indicate the quality, which is an advantage to the manufacturer, the retailer, and the consumer. If the manufacturer always packs cheese of good uniform quality, the demand for his branded product will increase because both the retailer and the consumer will know what brand to buy.

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